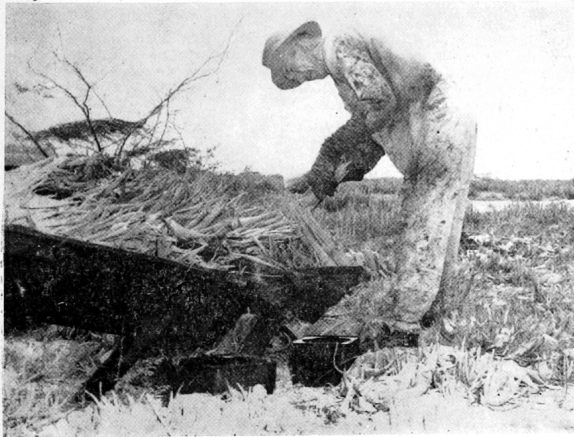


The rugged aloe plant (about 12 inches high) has been spread over much of Aruba; thrives in this dry climate and soil.

First of a series of articles on industries of Aruba which are contributing to the economic well-being of the island.

Aruba's Amazing Aloes

...a better future is predicted



During March to October the aloe leaves are cut, placed end down in tilted wooden troughs. The stalks exude their juice which drains into cans. (The aloe plants grow new leaves each year from the same stem).

Foi Maart te October, e planchinan ta worde cortá y montoná den bakinan. E azeta diki ta lek for di e blaachinan. E planchi fuerte di aloe ta crece na abundancia riba Aruba. Tur anja e planchi ta saka blaachi nobo.



The old method of preparing aloe juice for markets needed 12 to 14 hours of boiling and stirring in copper cauldrons (see above). This made a black pitch-like substance which had to be refined in the States for aloe.

E sistema bieuw di prepará e azeta pa exportacion tabata tuma 12 a 14 ora di herbamento den weyanan grandi di koper. Resultado tabata un líquido diki manera breeuw, cu mester a worde refiná na Merca pa saka e aloin afor.



The Aruba Aloe Products Company has an extensive layout. For the first time, aloin can be refined directly from the juice, and the company may revive an industry which has suffered from traditional but time-consuming methods and labor scarcity.

Aruba Aloe Products Company tin un planta bon reglá na Dakota. Pa di promé bez na Aruba, aloin ta worde saká for di e azeta curú, y e Compañia lo por rebibá un industria cu a bai atras pa via di un metodo bieuw cu tabata tuma mucho tempo.

Just prior to the arrival of Lago, aloes were Aruba's major industry. Once again the utilization of aloes is making strides through new chemical methods of refining. The old is contrasted with the new in this article, first in a series presenting the ways Aruba's natural resources are being utilized.

A housewife in Boston bought some medicine last week which listed on the label (among other ingredients) "aloin."

A farmer in Aruba carefully sliced off the leaves on an aloe plant and piled them on a wooden trough. Slowly draining from the end of the trough was a dark-brown, strong-smelling sap.

An American engineer in Aruba flipped the switch on a machine which whirled at a rate of 700 revolutions per minute.

The story which connects these three events is a story that started two thousand years ago with the early Greeks... a story that Aruba has played the major part in during the last sixty years. It is the history of the amazing aloe plant.

Aruba Has Best Supply

Aloes grow uncultivated over most of Aruba and Bonaire. Strong and hardy, they average 12 inches in height and grow in a cluster of thick, juice-filled leaves with sharp tips and spiny edges. The juice of the aloe is one of the world's oldest natural sources for laxatives. And except for some parts of Africa, Venezuela and Santa Domingo, they are grown commercially nowhere else in the world.

Aloes were first brought to Aruba in 1864 by Governor Ferguson. While traveling throughout the world, he had seen the aloes industry in parts of Africa. Since the climate there was almost identical to that of Aruba, the Governor imported the first plants from the island of Socotra, on the east African coast. His experimental garden on the outskirts of Oranjestad was successful. (This place still has the name "Socotoro.")

A Happy Marriage

Aloes and Aruba made a happy marriage. The right amount of tropic sunshine, cool nights, and intermittent rains during three months of the year made the plants thrive.

For many years aloe cutting was one of the major industries of Aruba. In 1941, for instance, Aruba and Bonaire exported 630,000 pounds of dried aloe juice... approximately 78 percent of the world's total supply. Before World War II, three-fourths of Aruba's aloes were sold to manufacturers of pharmaceuticals in

the United States, and the rest shipped to England and Europe.

Methods of preparing the aloe juice for market were traditional and time-consuming. In early times the water content of the fresh juice was evaporated by pouring the liquid into shallow open pans. Later this was speeded up by boiling in copper cauldrons over a wood fire for 12 to 14 hours until it became tar-like and pitch-black. (The burning of many tons of wood each year under the pots was probably responsible for Aruba's lack of trees.) It was then laded into paperlined boxes, and when cool had the consistency of warm asphalt. The boxes, weighing 125 pounds, were wrapped in burlap and carted to one of several dealers' warehouses in Oranjestad to await export by freighter.

Then the War came. The shortage of manpower caused by both Lago's needs and national defense struck a hard blow to the aloe industry. The old methods were too slow and costly, and until recently it looked as though one of Aruba's promising natural resources would go to waste.

In all respects, except that of labor, the prospects seemed good. Chemical analysis of the aloe gum showed an average aloin content of better than 20 percent for the variety grown in Aruba, as compared to about 12 percent for other localities. The world demand still existed, since no substitute for aloin as a base in laxatives had been found. The only problem was finding a method of producing the gum more efficiently.

A short-cut to Aloin

C. H. G. Eman, studying the post war prospects of the aloe industry, conceived a short-cut to the production of aloin. "Why not refine the pure aloin directly from the raw juice?" he conjectured. This would cut shipping costs, eliminate the hours of boiling (which may deteriorate some of the aloin), and bring to Aruba a unique industrial process which would improve upon the classical refining process carried out in the States.

Two and one-half years of research and planning in conjunction with a New York City engineering firm resulted in a small pilot plant being built here in July 1948. The pilot plant was surprisingly successful. A

much higher yield of aloin was obtained from the raw juice, and the resulting dry yellow powder far exceeded USP and BP requirements for purity. (United States and British Pharmacopoeia).

Factory is Built

A full scale factory was quickly installed near Dakota field. Much of the equipment for the plant was manufactured locally.

The process innovated by Mr. Eman and U.S. chemical engineer Irving D. Cantor separates the aloin from the aloe juice by a chemical and engineering method, following which it is dried in an oven and ground to a fine yellow powder. (Parts of the process are shown in pictures on the opposite page).

When the aloe juice is brought in from the fields by truck, it is dumped into an underground cistern; from there it is pumped into four large storage tanks.

When the juice is pumped into the tanks of the factory to begin its refining, sea water is added to separate the unwanted resins which are in the juice. (Sea water is used almost exclusively because of the scarcity of fresh water, and is pumped up from the sea through a one-mile pipeline.)

The aloin is then chemically separated from the remaining mixture and purified by crystallization. The crystals are collected in a centrifuge, whirled at a high speed until partly dry, completely dried in an oven, and ground to a powder. The end product analyzes 99.6 percent or better pure aloin.

Shipping costs saved

The powder is packed for export in fibre drums holding 100 pounds and makes a considerable saving in shipping costs over the old method of exporting aloe gum in wooden boxes.

When operating at total capacity, the plant can supply the entire world demand. Although this year's record heavy rainfall has cut the aloe harvest considerably, the Aruba Aloe Products Company is hopeful that its modern methods will put new life into one of Aruba's natural resources.



"Shon Burico" still has his job of carrying aloe juice out of the fields; from this point on, however, traditional methods are being replaced by modern engineering



C. H. G. Eman, owner of the Aruba Aloe Prod. Co., and U.S. engineer Irving D. Cantor study a sample of the yellow aloin powder. This purified material is sold to makers of pharmaceutical products.

C. H. G. Eman donjo di Aruba Aloe Products Company, y un ingeniero químico Americano, Irving D. Cantor, ta studia un muestra di e puru geel. E producto aki ta worde bendí na fabricantenan di remedi na Merca.



The first shipment of aloin powder leaves the factory on May 1, 1950. It is on its way to the famous Norwich Pharmacal Co., world's largest dealer in aloes, and the exclusive selling agents for this product in the United States.

E promé carga di puru di aloin ta sali for di e fabrica dia 1 di Mei di 1950. E ta na caminda pa Norwich Pharmacal Co., negociantenan den aloe, y agentenan exclusivo di es producto na Merca.

Aruba Ta Produci Aloe Pa Henter Mundo

Promé cu Lago a establecé, aloe tabata industria principal di Aruba. Keto pa varios anja, industria di aloe ta biniendo ariba atrobe pa medio di metodonan químico moderno, cu ta haci su produccion eficiente y menos costoso.

Un señora na Merca ta cumpra un botter di remedi, y riba e papel ta pará cu, entre otro, e remedi ta contene "aloin".

Un Arubiano ta corta blaachinan di un planchi di aloe y ta montoná nan den un baki. Un líquido preto y diki cu un holor fuerte ta lek afor.

Un ingeniero químico na Aruba ta cende un machien cu ta dreí cu un rapidez di 700 buelta pa minuut.

E storia cu ta conecta e tres accionnan aki a cuminsa dos mil anja pasá, cu Griegonan; den e storia Aruba a figurá cu masha importancia durante e ultimo 60 anjanan. Esaki ta e storia di e planchi di aloe.

Aruba su Aloe ta di Mihor

Aloe ta crece na mondi tanto na Aruba como na Bonaire. Planchinan duru y fuerte, nan ta alcanza un haltura di mas o menos 12 duim, y nan ta crece den un boshi di blaachinan diki, yen di azeta, y cu puntanan y randnan skerpi. Azeta di aloe ta un di e productonan natural di mas bieuw pa preparacion di purgante, y cu excepcion di algun parti na Africa, Venezuela, y Santo Domingo, aloe no ta worde cultivá pa doelnan comercial na ningun otro lugar den mundo.

Gezaghebber Ferguson a trece e promé planchinan di aloe na Aruba na anja 1864; den curso di su biahlanan el a mira industria di aloe na Africa. Siendo cu e clima di aya ta casi mescos cu e di Aruba, el a importá e promé planchinan foi di e isla Socotra, na costa occidental di Africa, y el a cultivá nan den un cunucu banda di Oranjestad, cual lugar ainda ta carga e nomber Socotoro.

Aloe cu Aruba a bai bon cu otro. Solo fuerte, nochinan fresco, y yobidanan durante tres luna pa anja cu intervencionan adecuado, a haci e planchinan crece y rende.

Hopi anja largo, aloe tabata un di e industrianan principal di Aruba. Na 1941, por ehempel, Aruba y Bonaire a exportá 630,000 liber di azeta di aloe, mas o menos 74% di total di henter mundo. Promé cu di dos guerra mundial (1939) $\frac{3}{4}$ parti di aloe Arubiano tabata worde exportá pa Merca, y e resto pa Inglatera y Europa.

Metodonan pa prepará e azeta pa mercado tabata tradicional y tabata tuma hopi tempo: e azeta tabata worde bashá den panchinan grandi plat, pa e awa cu tin den e azeta evaporá; djei nan tabata herebe e azeta den weyanan grandi di koper durante 12 of 14 ora, te ora cu e bira preto y diki mescos cu breeuw. E ora tabata saké cu cucharanan grandi, yené na cahanan furá cu papel. Nan tabata lora e cahanan di 125 liber cada un den paña di saco, y nan tabata hiba nan bai bende cerca un di e varios cumpradornan di aloe na Oranjestad, unda nan tabata worde depositá sperando exportacion.

Den esey guerra a bini aden. Hombenan tabata ocupá sea na Lago of den dienst, y esaki tabata un sla duru pa industria di aloe. E metodonan tabata mucho bieuw y mucho costoso, y te poco tempo pasá a parce manera cu un di Aruba su industrianan tabata muriendo.

Un metodo mas eficiente

Análisis químico a muestra cu e aloe di Aruba ta contene mas o menos 20 por ciento di "aloin" (e material cu ta worde usá pa traha remedi), compará cu 12 por ciento di e aloe di otro lugarnan. Ta facil di comprende pakico aloe di Aruba tabata preferi riba mercado. Ademas, te ainda no tin ningun substituto pa aloin como base di purgante. E único problema tabata di haya un metodo pa medio di cual por a produci e azeta mas eficiente.

"Pakico no por refiná e aloin puro directamente for di e azeta curú?" ta un pregunta cu Casey Eman a haci su mes. Di es moda lo eliminá oranan di herbemento, flete lo ta menos, y Aruba lo haya un proceso industrial unico, mucho mihor cu e proceso di refinamiento di e azeta na Merca, puesto cu aki por saka e aloin for di aloe curu.

Un fabrica a worde trahá

Dos anja y mei di estudio y planeamento cu un firma di ingenieronan na New York a sigui, y e resultado tabata un planta chikito a worde trahá aki na Juli di anja 1948. E planta tabatin masha éxito. Nan tabata por a saka mucho mas aloin for di e azeta curú, y e puiiru geel cu tabata bini afor a pasa testnan farmaceutico di Merca y Inglatera.

E proceso, sistema nobo di Señor Eman y un ingeniero químico Americano, Sr. Irving D. Cantor, ta separá aloin for di e azeta di aloe pa medio di un metodo químico masha complicá, despues di cual ta seké den un forno y ta trahé na un puiiru geel.

Ora cu e azeta yega foi conucu, nan ta bashé den un deposito bao di tera; djei nan ta pomp e den cuater tanki grandi.

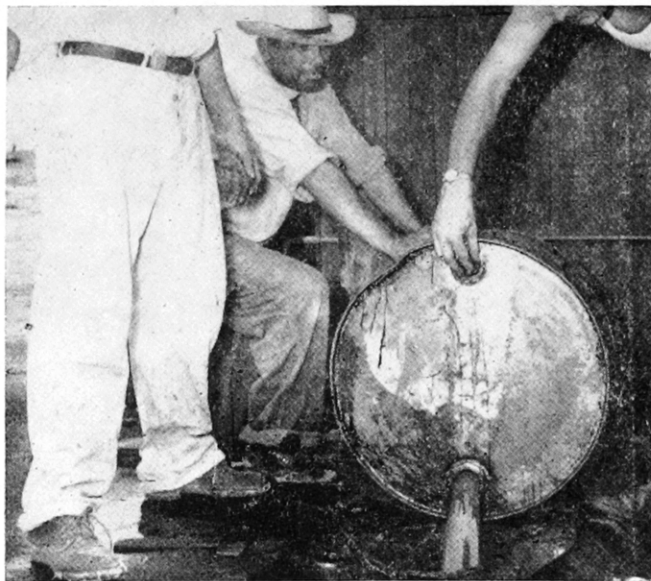
Pa refinamiento nan ta usa awa di lamar, pa no gasta awa dushi cu ta scars na Aruba. Awa ta worde gepomp foi lamar pa door di un pipa di un milla largo. E aloin ta worde separá químicamente for di e azeta y e ta worde purificá pa medio di cristalizacion. Despues di esey nan ta seké den un machine cu ta dreí cu un rapidez único; djei e ta worde seká mas ainda den un forno, despues di cual nan ta mulé na un puiiru geel.

E puiiru ta worde gepak na drumnan di carton di 100 liber y e diferencia den flete ta grandi, compará cu e sistema bieuw di exportá aloe na cahanan grandi.

Aunque yobida frecuente durante e anja cu a pasa a perhudicá cosecha di aloe hopi, Aruba Aloe Products Company ta spera cu e metodo nobo lo nifica un futuro mihor pa un di Aruba su industrianan.

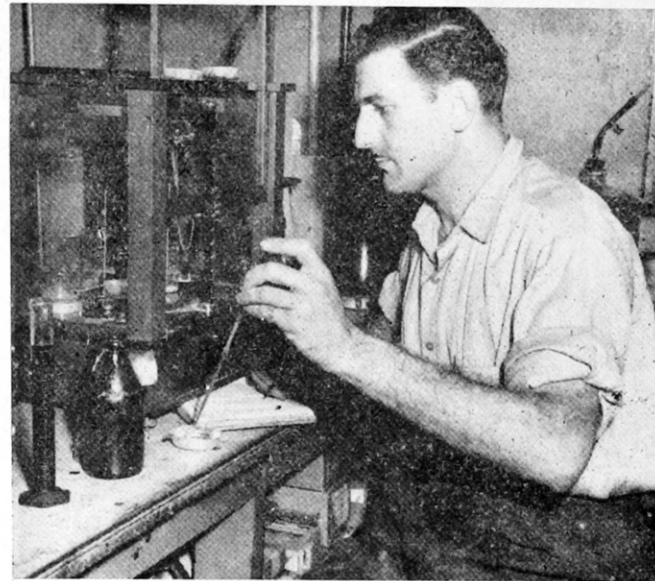
Si e planta traha na capacidad maximo, e por produci basta pa cubri demanda mundial y e por tuma produccion di tur aloe na Aruba y Bonaire pa su cuenta.

This is the Way Aloin for the World is made in Aruba



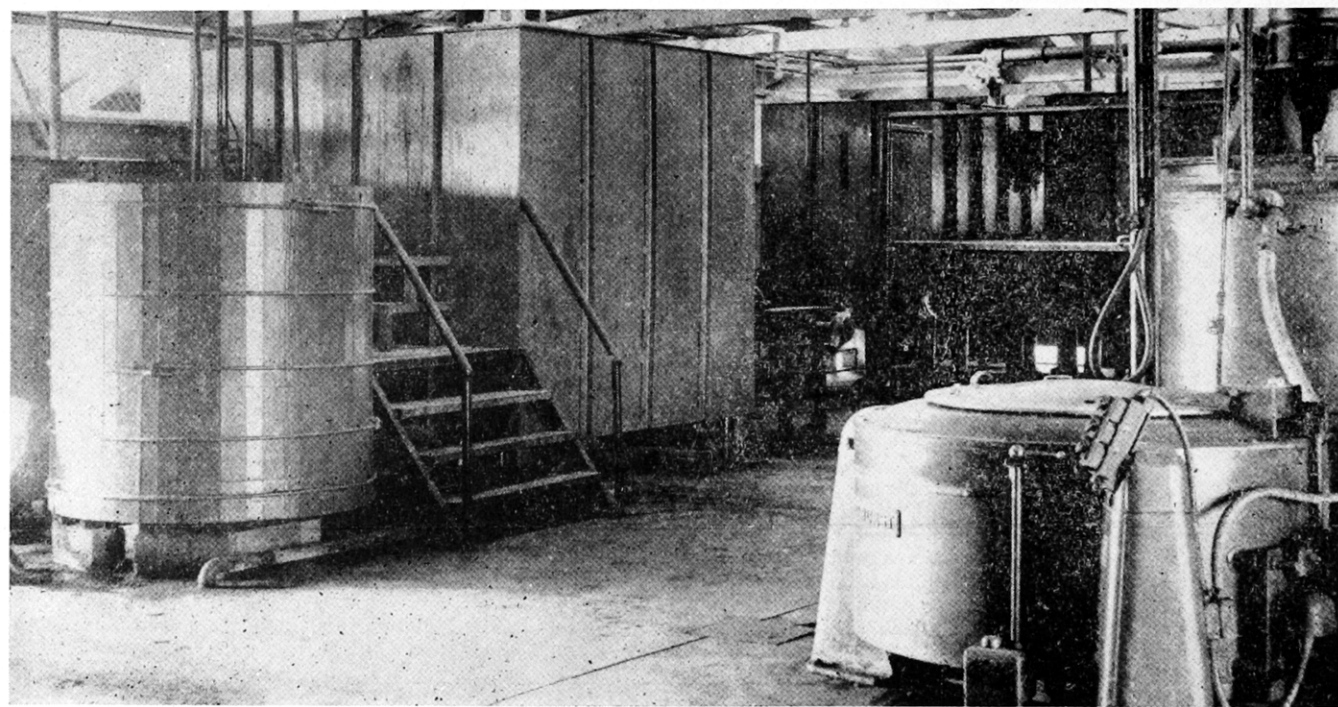
Porfilio Van der Biezen brings a drum of raw aloe juice to the factory for processing. Here it is being poured into an underground cistern for storage before it is refined.

Porfilio van der Biezen ta trece un drum di azeta curú na e fábrica pa e worde refiná. Aki e ta bashé den un deposito bao tera te ora cu nan ta cla pa traha cuné.



The aloe plant absorbs different quantities of water according to the rainfall. In the laboratory of the factory, a sample of the aloe juice is being tested for water content.

E planchi di aloe ta absorbe awa segun yobida. Den laboratorio di e fabrica un muestra di e azeta curú ta worde getest pa nan mira cuanto percentahe di awa tin aden.



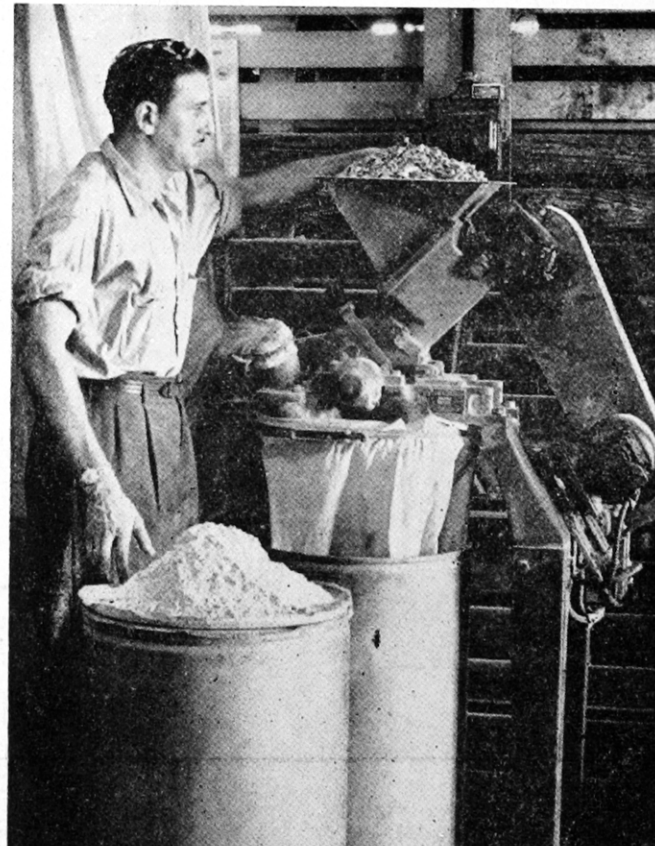
Part of the factory layout is shown in the above picture. The tanks at the left are the chemical separation units; the tanks at the rear receive the juice when it is first mixed with sea water, and the machine in the foreground in the high-speed centrifuge dryer.

Riba e portret aki nos ta mira interior di e fábrica; den e tankinan na banda robez separacion químico ta tuma lugar; den e tankinan mas atras e azeta ta bai ora cu caba di mezclé cu awa di lamar, y e machien mas adilanti ta seké.



Aloe juice is charged into one of the tanks which separate out the plant resins and other impurities. After further chemical processing, the pure aloin is derived and dried in a large oven.

Azeta di aloe ta worde bashá den un di e tankinan unda e ta worde purificá. Despues di mas procesonan químico, e aloin puro ta worde secá den un forno grandi.



The final step is grinding of the aloin chunks into a fine yellow powder. Irving D. Cantor points to the pulverising machine which does this. (By his right hand is a heap of the aloin powder.)

E ultimo paso ta mulamento di e aloin na un puiiru geel fini. Irving D. Cantor ta muestra e machine cu ta haci esaki. (Banda di su man drechi, un monton di e puiiru di aloin.)